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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/383,876	08/26/1999	CHRISTOPHER H. RAEDER	AMDA.316PA	7139

7590 06/04/2002

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EXAMINER

NGUYEN, DUNG V

ART UNIT PAPER NUMBER

3723

DATE MAILED: 06/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/383,876

Applicant(s)

RAEDER, CHRISTOPHER H.

Examiner

Dung V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6, 8, 10-12, 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Renteln (USPN 5,664,987). Renteln discloses a method for chemical mechanical polishing a wafer using a CMP apparatus 10 having a polishing table 16 including a polishing pad 202 and a wafer carrier 26 adapted to carry a wafer 200 relative to a center of the polishing table 16 comprising using the polishing pad 202, polishing the wafer 200 at a position relative to the center, determining that the wafer 200 is being polished in a center-offset manner, as a function of the wafer 200 being polished in the center-offset manner, conditioning the pad 202 and positioning the wafer carrier 26 misaligned with respect to the pad 202, wherein the center-offset manner includes a center-fast or center-slow manner, and including inspecting a wafer during the polishing process, removing the wafer from the carrier and manually inspecting the wafer, including arranging a conditioning wheel 220 over the pad 202 and relative to the center of the polishing table . Renteln also discloses an arrangement for chemical mechanical polishing comprising a polishing pad 202 arranged to rotate, a wafer carrier arranged to carry a wafer 200, rotate, and hold the wafer 200 face-down on the polishing pad 202, a detection arrangement adapted to detect whether the wafer is

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polishing in a center-offset manner, a conditioning device 220 adapted to condition the pad 202, both the conditioning device 220 being arranged, and the wafer carrier being misaligned, relative to the polishing pad 202 as a function of the wafer having been polished in a center-offset manner (note Fig. 3, abstract, col. 3, line 41 to col. 5, line 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renteln (USPN 5,664,987) in view of Yang (USPN 6,113,462). Renteln discloses the claimed invention as described above, however, Renteln does not disclose arranging a conditioning wheel comprises thinning the pad. Yang discloses thinning a pad by conditioning (note col. 7, lines 48-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to arranging a conditioning wheel comprises thinning a pad as disclosed by Yang in order to alter the thickness of a pad.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renteln (USPN 5,664,987) in view of Hu et al (USPN 6,227,947). Renteln disclosed the claimed invention as described above, however, Renteln does not disclose a supply arranged to supply conditioning material to a polishing pad and the conditioning material is water. Hu et al disclose a supply 70 arranged to supply conditioning material to a

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polishing pad and the conditioning material is water (note Fig. 5, col. 8, lines 29-56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Renteln with a supply as disclosed by Hu et al in order to provide a cleaning solution to condition a pad.

Response to Arguments

Applicant's arguments filed 22 May 2002 have been fully considered but they are not persuasive. In response to applicant's argument that there is no discussion in the '987 reference of center-offset polishing process in which the instant application discusses center offset conditions wherein portions of wafer are polished at different rates and may be dependent upon factors such as the condition of the pad and pressures applied to the wafer. The '987 reference discloses these conditions on col. 3, lines 53-58 as following: "among other factors, surface topography of the oxide layer of the semiconductor wafer to be polished, the abrasiveness of the slurry, the rotational velocity of the polishing pad/platen and the level of pressure applied by the polishing pad to the semiconductor wafer". In response to applicant's argument that '987 reference does not teach or suggest of conditioning the pad as a function of such center-offset condition, '987 reference discloses this limitation in col. 4, lines 14-19 as following: "Based upon a determination of the rate of oxide removal, a modified recipe 120 is generated for conditioning the polishing pad. This modified recipe 120 is provided to an actuation mechanism for controlling the conditioning wheel. The modified recipe 120 specifies the period of time of conditioning". Furthermore, in response to applicant's argument that Office Action has not cited a portion of '987

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reference that teach or suggest positioning the wafer misaligned with respect to the pad, Office Action has pointed to Fig. 3 which shows that the wafer misaligned with respect to the pad, and col. 4, lines 28-31 states as following: "During polishing, the polishing pad 202 rotates counter-clockwise at angular velocity ω_p about an axis 204, while the wafer 200 rotates at an angular ω_w , about an axis 106".

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the knowledge generally available to one of ordinary skill in the art.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung V Nguyen whose telephone number is 703-305-0036. The examiner can normally be reached on M-F, 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail can be reached on 703-308-2687. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

DVN
May 31, 2002


George Nguyen
Primary Examiner